

Amendments to the Specification:

Please insert the following heading and section at the end of page 3, before the section titled "BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS" that begins at the top of page 4:

BRIEF SUMMARY OF THE INVENTION

The present invention provides a rotor, such as turbine wheel or compressor wheel, as well as a rotary apparatus and an associated method. According to one embodiment of the present invention, a turbine wheel is connected to a shaft and configured to be rotated with the flow of gas through a housing to thereby rotate the shaft. The wheel includes a body portion and a plurality of blades. The body portion is configured to rotate about an axis, and the blades extend radially outward from the body portion. Each blade defines first and second edges, with the first edge extending generally radially and the second edge extending generally axially, and the second edge being a leading edge of the blade that defines a nonlinear, concavely curved profile in radial-axial projection. In one embodiment, the profile of the second edge extends smoothly and continuously from a first end to a second end in a generally axial direction, with the first and second ends extending radially to a greater extent than a mid-point of the profile between the first and second ends.

A rotary apparatus according to one embodiment of the present invention is configured to circulate a gas. The apparatus includes a housing defining an inlet and an outlet, a rotor with a body portion and radially extending blades disposed in the housing and configured to rotate with a flow of gas through the housing, and a plurality of vanes disposed at circumferentially incremental locations in the housing radially outward from the second edge of the blades. Each blade defines a first edge extending generally radially and a second edge extending generally axially, with the second edge being a leading or trailing edge of the blade that defines a nonlinear profile in radial-axial projection. The blades are subjected to cyclically varying aerodynamic forces as the blades pass in proximity to the vanes during rotation of the rotor, thereby cyclically stressing the blades, the vanes being adjustable to thereby control the flow of the gas through the housing.

According to another embodiment of the present invention, there is provided a method of manufacturing a rotor structured to rotate with a flow of gas through a housing. The method includes providing first parameters defining a geometric configuration of a blade extending radially from the rotor and defining an edge, providing second parameters defining an expected cyclic pressure distribution on the blade during rotation of the rotor in the housing, determining a high displacement portion of the blade being subjected to a relatively higher displacement than adjacent portions of the blade resulting from the expected cyclic pressure distribution, adjusting the first parameters to remove at least part of the high displacement portion from the blade such that the edge of the blade is nonlinear in radial-axial projection, and thereafter forming the blade according to the first parameters.

Please replace the paragraph on page 11, lines 5-16, with the following replacement paragraph:

The adjustment of the profile of the second edge **38** need not conform precisely to the portion **46a** of the blade **32a** that is subjected to relatively high displacements. Instead, the adjustment of the profile can also be determined in consideration of the strength of the blade **32**, the ease of casting or otherwise forming the blade **32**, the aerodynamic performance of the blade **32** and, hence, the rotor **30**, and additional considerations. For example, as shown in Figures 1 and 3, the profile in the generally axial direction can define a smooth and continuous curve from a first end to a second end in order to minimize sharp edges that might otherwise concentrate stress and/or induce unnecessary pressure losses. The change in the profile of the edge **38** can also result in a reduction in the vibrating mass of the rotor **30**, which typically increases the natural vibratory frequencies of the rotor **30**, possibly increasing one or more of the resonant frequencies of the rotor **30** beyond the operating frequency of the rotor **30**.